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Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Electronics and Communication Engineering 07th June 2025 Shift 1
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Electronics and Communication Engineering

Group Number :	1
Group Id :	83189657
Group Maximum Duration :	0
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Show Attended Group? :	No
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Electronics and Communication Engineering

Section Id :	83189657
Section Number :	1
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Number of Questions :	120
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Sub-Section Number :	1
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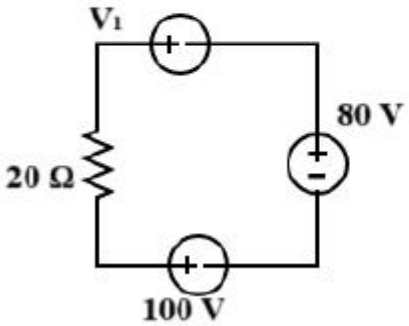
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 8318966721 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In the given circuit a charge of 900 C is delivered to the 100 V source in a minute. The value of V_1 must be_____.



Options :

1. ✖ 240 V

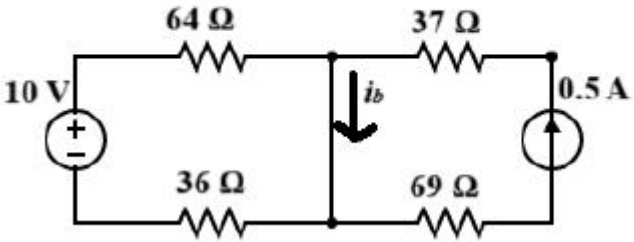
2. ✔ 320 V

3. ✖ 120 V

4. ✖ 60 V

Question Number : 2 Question Id : 8318966722 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Find the current i_b in given circuit below.



Options :

1. ✖ 0.5 A

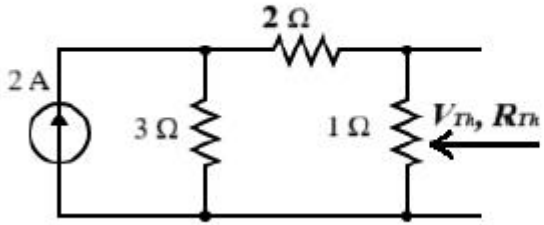
2. ✔ 0.6 A

3. ✖ 0.4 A

4. ✖ 0.3 A

Question Number : 3 Question Id : 8318966723 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Find the values of V_{Th} & R_{Th} in the given circuit.



Options :

1. ✖ -2 V, 6/5 Ω

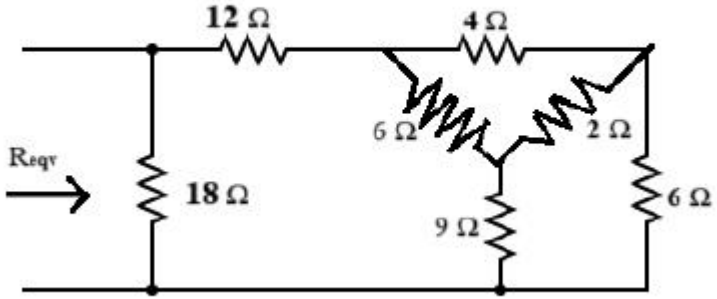
2. ✖ 2 V, 5/6 Ω

3. ✔ 1 V, 5/6 Ω

4. ✖ -1 V, 6/5 Ω

Question Number : 4 Question Id : 8318966724 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Find the R_{eqv} from the circuit.



Options :

1. ✖ 18 Ω

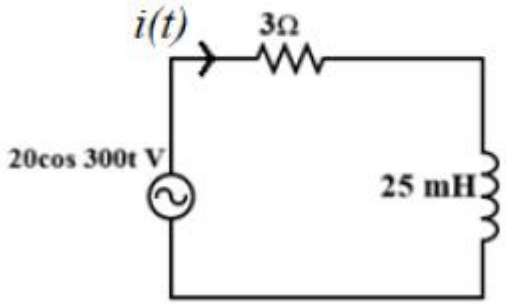
2. ✖ 72/13 Ω

3. ✔ 9 Ω

4. ✖ 36/13 Ω

Question Number : 5 Question Id : 8318966725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Find the value for $i(t)$ from the circuit.



Options :

1. ✖ $20\cos(300t + 68.2°)$ A

2. ✖ $20\cos(300t - 68.2°)$ A

3. ✖ $2.48\cos(300t + 68.2°)$ A

4. ✔ $2.48\cos(300t - 68.2°)$ A

Question Number : 6 Question Id : 8318966726 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The emitter of a transistor is_____doped.

Options :

1. ✖ Lightly

2. ✔ Heavily

3. ✖ Moderately

4. ✖ Non

Question Number : 7 Question Id : 8318966727 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The drain current in a JFET is given by:

Options :

1. ✔ $I_D = I_{DSS}(1 - \frac{V_{GS}}{V_P})^2$

$$I_D = I_{DSS}\left(1 + \frac{V_{GS}}{V_P}\right)^2$$

2. ✖

$$I_D = I_{DSS}\left(1 - \frac{V_p}{V_{GS}}\right)^2$$

3. ✖

$$I_D = I_{DSS}(1 + \frac{V_P}{V_{GS}})^{1/2}$$

4. ✖

Question Number : 8 Question Id : 8318966728 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The gate voltage in a JFET at which drain current becomes zero is called_____.

Options :

Saturation voltage

1. ✖

Pinch-off voltage

2. ✔

Cut-off voltage

3. ✖

Active voltage

4. ✖

Question Number : 9 Question Id : 8318966729 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

An FM signal having a modulation Index of M is passed through a frequency tripler. The FM signal at the output of tripler will have a modulation index of_____.

Options :

unaltered

1. ✖

3M

2. ✔

6M

3. ✖

M/3

4. ✖

Question Number : 10 Question Id : 8318966730 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

VHF waves travel as_____.

Options :

surface waves

1. ✖

ground waves

2. ✖

sky waves

3. ✖

space waves

4. ✔

Question Number : 11 Question Id : 8318966731 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The binary code of $(21.125)_{10}$ is_____.

Options :

1. ✔ 10101.001

2. ✖ 10100.001

3. ✖ 10101.010

4. ✖ 10100.111

Question Number : 12 Question Id : 8318966732 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

As per Boolean algebra, (A + B) (A + C) = _____.

Options :

1. ✔ A + BC

2. ✖ AB + AC

3. ✖ A

4. ✖ B

Question Number : 13 Question Id : 8318966733 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The medium which reflects high frequency radio waves back to the earth's surface is called_____.

Options :

1. ✖ Biosphere

2. ✖ Stratosphere

3. ✖ Troposphere

4. ✔ Ionosphere

Question Number : 14 Question Id : 8318966734 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Changes in temperature will affect the level of _____.

Options :

1. ✖ current gain β

2. ✖ leakage current, I_{CEO}

3. ✔ both current gain β and leakage current I_{CEO}

4. ✖ Voltage gain

Question Number : 15 Question Id : 8318966735 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For the SOP expression $A\,\overline{B}\,C\ +\ \overline{A}\,B\,C\ +A\,B\,\overline{C}$, how many 1s are in the truth table's output column?

Options :

1. ✔ 3

2. ✖ 1

3. ✖ 2

4. ✖ 5

Question Number : 16 Question Id : 8318966736 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The envelope detector is a/an_____.

Options :

1. ✖ Synchronous detector

2. ✔ Asynchronous detector

3. ✖ Product demodulator

Coherent detector

4. ✖

Question Number : 17 Question Id : 8318966737 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The maximum power efficiency of an AM modulator is_____.

Options :

25%

1. ✖

50%

2. ✔

75%

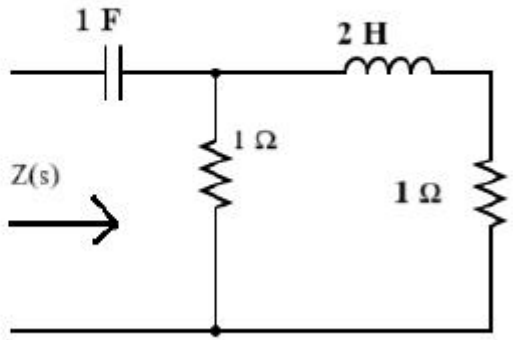
3. ✖

100%

4. ✖

Question Number : 18 Question Id : 8318966738 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For the given circuit Z(s)=_____.



Options :

1. $\frac{S^2+1.5S+1}{S(S+1)}$ ✔

2. $\frac{S^2+3S+1}{S(S+1)}$ ✖

3. $\frac{2S^2+3S+2}{S(S+1)}$ ✖

4. ✖ $\frac{2S^2 + 3S + 1}{2S(S + 1)}$

Question Number : 19 Question Id : 8318966739 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A bulb in a staircase has two switches, one switch being at the ground floor and the other one at the first floor. The bulb can be turned ON and also can be turned OFF by and one of the switches irrespective of the state of the other switch. The logic of switching of the bulb resembles_____.

Options :

1. ✖ an AND gate

2. ✖ an OR gate

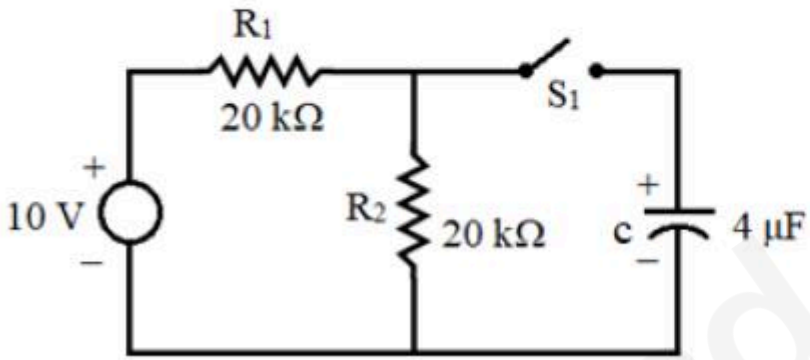
3. ✔ an XOR gate

a NAND gate

4. ✖

Question Number : 20 Question Id : 8318966740 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Switch S_1 is closed at time $t=0$ in the network shown. The expression for the voltage across the capacitor C is_____.



Options :

$10\cdot\left(1+e^{-40t}\right)$

1. ✖

$10\cdot\left(1-e^{-40t}\right)$

2. ✖

3. ✖ $10 \cdot \left(1+e^{-25t}\right)$

4. ✔ $10 \cdot \left(1-e^{-25t}\right)$

Question Number : 21 Question Id : 8318966741 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a simple RC high-pass filter, the desired roll-off frequency is 15 Hz and C = 10 μF. The value of R would be_____.

Options :

1. ✔ 1.06 KHz

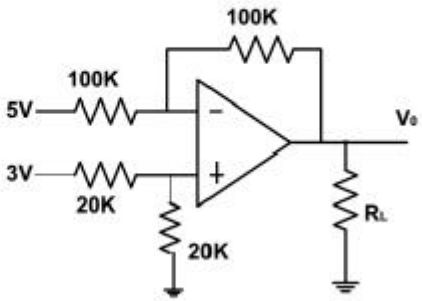
2. ✖ 13.33 KHz

3. ✖ 6.67 KHz

4. ✖ 5 KHz

Question Number : 22 Question Id : 8318966742 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For the op-amp circuit, V_o =_____.



Options :

1. ✖ 2 V

2. ✔ -2 V

3. ✖ 8 V

4. ✖ -5 V

Question Number : 23 Question Id : 8318966743 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The active region of the output characteristics for a common base transistor is that in which_____.

Options :

1. ✔ emitter j^n is forward biased and collector j^n is reverse biased

2. ✖ both emitter and collector j^n are forward biased

3. ✖ only collector junction is forward biased

4. ✖ both emitter and collector j^n are reverse biased

Question Number : 24 Question Id : 8318966744 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If carrier and modulating frequency are 100 kHz and 5 kHz respectively, the bandwidth of AM transmission will be_____.

Options :

1. ✖ 2 kHz

2. ✖ 5 kHz

3. ✔ 10 kHz

4. ✖ 40 kHz

Question Number : 25 Question Id : 8318966745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Determine the continuous time convolution integral and choose correct option for_____.

$y(t)=[u(t)- u(t-2)]*u(t)$.

Options :

1. ✔ $tu(t) + (2-t)\, u(t-2)$

2. ✖ $(2-t)\, u(t) + tu(t-2)$

3. ✖ $tu(t) + (t-2)\,u(t-2)$

4. ✖ $(t-2)\,u(t) + tu(t-2)$

Question Number : 26 Question Id : 8318966746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The energy of a signal $A\delta[n]$ is_____.

Options :

1. ✔ A^2

2. ✖ $\frac{A^2}{2}$

3. ✖ $\frac{A^2}{4}$

4. ✖ 0

Question Number : 27 Question Id : 8318966747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Determine the Laplace transform of $x(t) = (t^2 - 2t)\, u(t - 1)$.

Options :

1. ✔ $\frac{2\, e^{-s}(1 - s)}{s^3}$

2. ✖ $\frac{e^{-2s}(1 - s)}{s^2}$

3. ✖ $\frac{2\, e^{-2s}(1 + s)}{s^3}$

4. ✖ $\frac{e^{-s}(1 - s)}{s^2}$

Question Number : 28 Question Id : 8318966748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Find the Fourier transform of the given signal $x(t) = e^{-t+2}u(t - 2)$.

Options :

1. ✔ $\frac{e^{-2jw}}{1+jw}$

2. ✖ $\frac{e^{2jw}}{1+2jw}$

3. ✖ $\frac{w^{-2}}{1+jw}$

4. ✖ $\frac{-w^{-2}}{1+2jw}$

Question Number : 29 Question Id : 8318966749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For handling multiple input, multiple output system_____ is used.

Options :

1. ✔ State variable approach

2. ✖ Bode plot

3. ✖ Nyquist plot

4. ✖ Root locus technique

Question Number : 30 Question Id : 8318966750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A phase lag-lead network introduces in the output_____.

Options :

1. ✖ Lag at high frequency and lead at low frequency

2. ✔ Lead at high frequency and lag at low frequency

3. ✖ Lag at all frequency

4. ✖ lead at all frequency

Question Number : 31 Question Id : 8318966751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In AM_____.

Options :

1. ✔ Carrier amplitude is varied

2. ✖ Carrier frequency is varied

3. ✖ One side band is produced

4. ✖ Noiseless and high-fidelity reception is obtained

Question Number : 32 Question Id : 8318966752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

An antenna has directivity of 100 and operates at 150 MHz. The maximum effective aperture is

Options :

1. ✔ $31.8\ m^2$

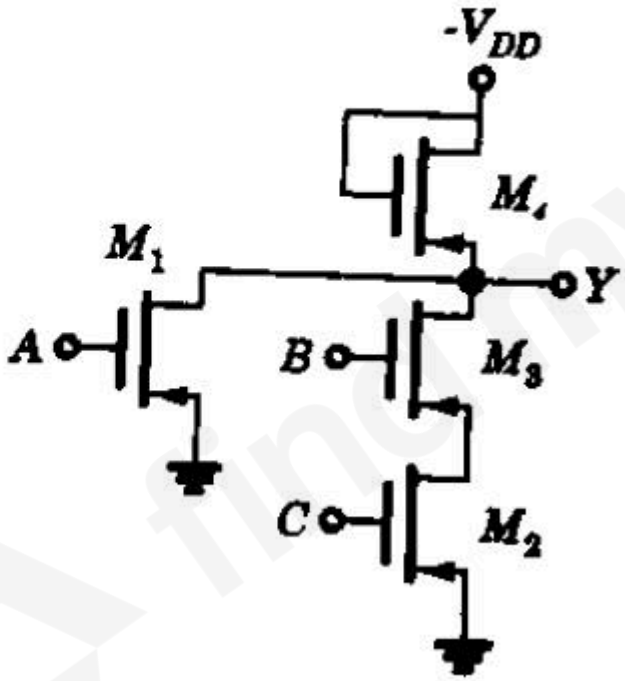
2. ✖ $62.4\ m^2$

3. ✖ $26.4\ m^2$

4. ✖ $13.2\ m^2$

Question Number : 33 Question Id : 8318966753 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The MOSFET circuit implements the function.



Options :

1. ✖ A(B+C)

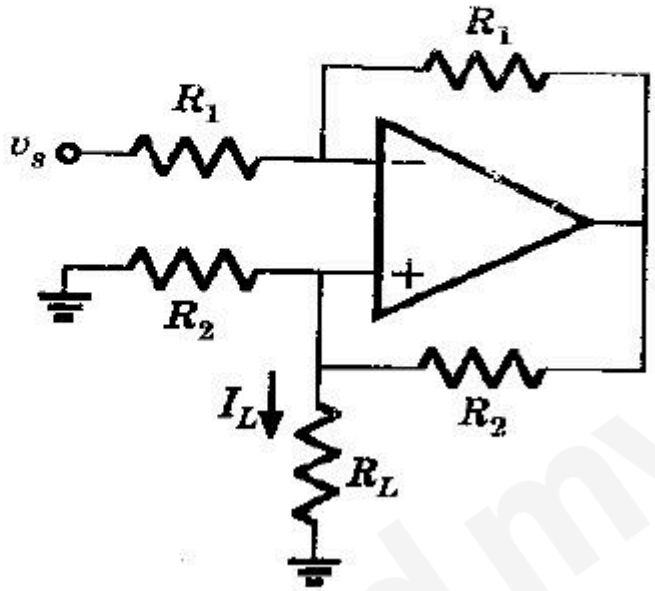
2. ✖ A+BC

3. ✔ $\overline{A + BC}$

4. ✖ ABC

Question Number : 34 Question Id : 8318966754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In the Op-Amp circuit, what is the load current I_L?



Options :

1. $-\frac{v_s}{R_2}$ ✔

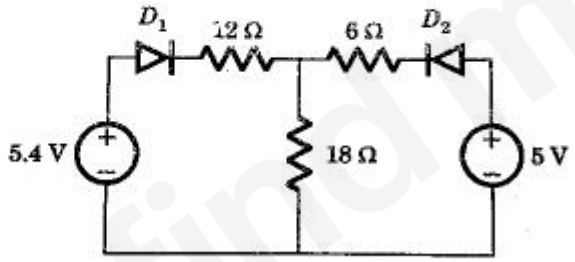
2. $-\frac{v_s}{R_L}$ ✖

3. ✖ $\frac{v_s}{R_L}$

4. ✖ $\frac{v_s}{R_2}$

Question Number : 35 Question Id : 8318966755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If diode cut-in voltage is 0.6 V. The diode status are



Options :

1. ✖ only D_1 on

2. ✖ only D_2 on

3. ✔ both D_1 & D_2 on

4. ✖ both D_1 & D_2 off

Question Number : 36 Question Id : 8318966756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A voltage source of 300 V has internal resistance of 4Ω and supplies a load having the same resistance. The power absorbed by the load is

Options :

1. ✖ 2510 W

2. ✖ 1150 W

3. ✔ 5625 W

4. ✖ 5000 W

Question Number : 37 Question Id : 8318966757 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The current flowing through an unloaded voltage divider is called the_____.

Options :

1. ✖ resistor current

2. ✖ load current

3. ✔ bleeder current

4. ✖ voltage current

Question Number : 38 Question Id : 8318966758 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In superposition theorem, voltage source is replaced by _____ and current source by _____.

Options :

1. ✔ open circuit, short circuit

2. ✖ short circuit, open circuit

3. ✖ short circuit, short circuit

4. ✖ open circuit, open circuit

Question Number : 39 Question Id : 8318966759 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For a base current of 10 μA, what is the value of collector current in common emitter, if $\beta_{dc} = 100$?

Options :

1. ✖ 10 μA

2. ✖ 100 μA

3. ✔ 1 mA

10 mA

4. ✖

Question Number : 40 Question Id : 8318966760 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Output of a phase splitter is_____.

Options :

a pair of sine waves of unequal amplitude

1. ✖

a pair of sine waves of equal amplitudes

2. ✖

a pair of sine waves of equal amplitudes and opposite phase

3. ✔

a pair of sine waves of unequal amplitudes and opposite phase

4. ✖

Question Number : 41 Question Id : 8318966761 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Primary advantage of a crystal oscillator is that_____.

Options :

1. ✖ it can oscillate at any frequency

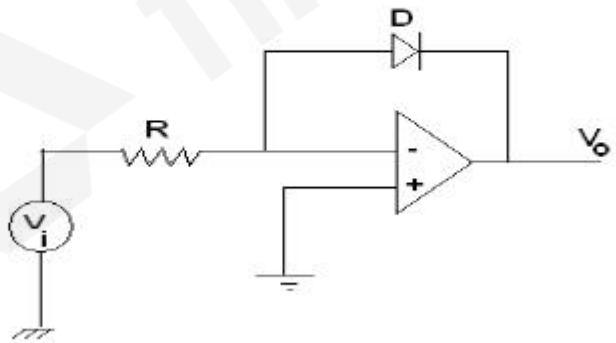
2. ✖ it gives a high O/P voltage

3. ✔ its frequency of oscillation remains almost constant

4. ✖ it operates on a very low dc supply voltage

Question Number : 42 Question Id : 8318966762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The circuit shown in the figure can be used as a_____.



Options :

1. ✖ Full wave rectifier

2. ✖ Voltage to frequency converter

3. ✔ Logarithmic amplifier

4. ✖ Frequency to voltage converter

Question Number : 43 Question Id : 8318966763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a negative feedback amplifier A = 100, $\beta = 0.04$ and $V_s = 50$ mV, then feedback will be_____.

Options :

1. ✔ 4

2. ✖ 8

3. ✖ 10

4. ✖ 2

Question Number : 44 Question Id : 8318966764 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A Schmitt trigger is_____

Options :

1. ✖ a comparator with only one trigger point.

2. ✔ a comparator with hysteresis.

3. ✖ a comparator with two trigger points

4. ✖ a comparator with three trigger points.

Question Number : 45 Question Id : 8318966765 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a LASER, which of the following processes have to be minimized.

Options :

1. ✖ Absorption and stimulated emission

2. ✔ Absorption only

3. ✖ Spontaneous emission only

4. ✖ Stimulated emission only

Question Number : 46 Question Id : 8318966766 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which IC is used for the implementation of 1-to-16 DEMUX?

Options :

1. ✔ IC 74154

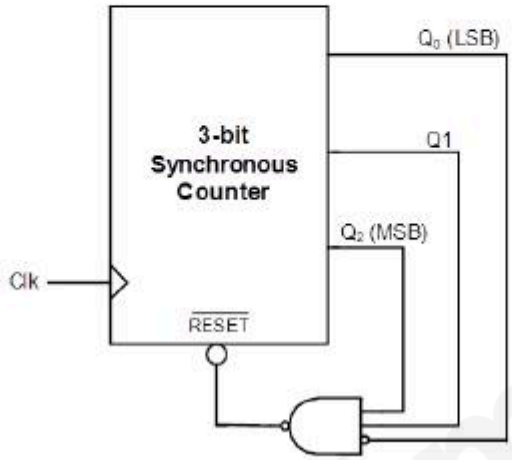
2. ✖ IC 74155

3. ✖ IC 74139

4. ✖ IC 74138

Question Number : 47 Question Id : 8318966767 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For the circuit shown in the figure, the delay of the bubbled NAND gate is 5 ns and that of the counter is assumed to be zero. If the clock (Clk) frequency is 12 MHz, then the counter behaves as a_____.



Options :

1. ✖ mod-5 counter

2. ✖ mod-6 counter

3. ✖ mod-7 counter

4. ✔ mod-8 counter

Question Number : 48 Question Id : 8318966768 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

How many T states are required for the execution of STA 7000H instruction?

Options :

1. ✖ 13

2. ✖ 11

3. ✔ 10

4. ✖ 12

Question Number : 49 Question Id : 8318966769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following system is causal?

Options :

1. $h(n)=n(\frac{1}{2})^n u(n+1)$ ✖

2. $y(n)=x^2(n)-x(n+1)$ ✖

3. $y(n)=x(-n)+x(2n-1)$ ✖

4. $h(n)=n(\frac{1}{2})^n u(n)$ ✔

Question Number : 50 Question Id : 8318966770 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a signal x(n), if 'n' is replaced by $\frac{n}{3}$, then it is called_____.

Options :

upsampling

1. ✔

folded version

2. ✖

downsampling

3. ✖

shifted version

4. ✖

Question Number : 51 Question Id : 8318966771 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The Z- transform of a^{-n} u(-n-1) is_____.

Options :

1. ✔ $\frac{-z}{z-1/a}$

2. ✖ $\frac{z}{z-1/a}$

3. ✖ $\frac{z}{z-a}$

4. ✖ $\frac{-z}{z-a}$

Question Number : 52 Question Id : 8318966772 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The discrete time Fourier transform of the signal, $x(n)= 0.5^{(n-1)}\ u(n-1)$ is_____.

Options :

1. ✔ $\frac{e^{-j\omega}}{1-0.5e^{-j\omega}}$

$e^{-j\omega}(1-0.5\,e^{-j\omega})$

2. ✖

$$\frac{0.5e^{-j\omega}}{1-0.5e^{-j\omega}}$$

3. ✖

$$\frac{0.5e^{j\omega}}{1-0.5e^{-j\omega}}$$

4. ✖

Question Number : 53 Question Id : 8318966773 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Given the unity feedback system with $G(s)=\frac{K}{s(s+6)}$,the value of K for damping ratio of 0.75 is_____.

Options :

1. ✖ 1

2. ✔ 4

3. ✖ 16

4. ✖ 64

Question Number : 54 Question Id : 8318966774 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

What will be the stability for the following transfer function?

$G(s) = 50/(s(s+5))$

Options :

1. ✖ Unstable

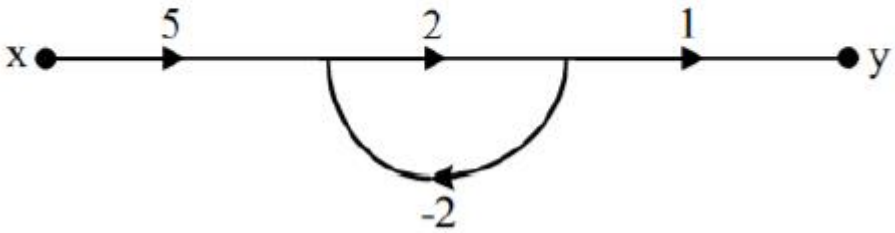
2. ✖ Marginally stable

3. ✔ Stable

4. ✖ Critically stable

Question Number : 55 Question Id : 8318966775 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In the signal flow graph of given figure, y/x equals.



Options :

1. ✖ 3

2. ✔ 2

3. ✖ 2.5

4. ✖ 1.5

Question Number : 56 Question Id : 8318966776 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A phase lag compensation will_____.

Options :

1. ✖ improve relative stability

2. ✔ increase the speed of response

3. ✖ increase bandwidth

4. ✖ increase overshoot

Question Number : 57 Question Id : 8318966777 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If system has multiple poles on $j\omega$-axis, the system is_____.

Options :

1. ✖ stable

2. ✖ unstable

3. ✖ conditionally stable

4. ✔ marginally stable

Question Number : 58 Question Id : 8318966778 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A narrow band FM signal is generated using a phase modulator. The maximum deviation at the output of a phase modulator is about_____.

Options :

1. ✖ ± 250 Hz

2. ✖ ± 1 kHz

3. ✖ ± 1 MHz

4. ✔ ± 25 Hz

Question Number : 59 Question Id : 8318966779 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A pre- emphasis circuit provides extra noise- immunity by_____.

Options :

1. ✖ Boosting the bass frequencies

2. ✔ Amplifying the higher audio frequencies

3. ✖ Pre-amplifying the whole audio band

4. ✖ Converting PM to FM

Question Number : 60 Question Id : 8318966780 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

To save transmitted power, the carrier of an AM signal obtained by sinusoidal modulation to a depth of modulation equal to 1, has been recovered. The percentage saving in power is_____.

Options :

1. ✖ 33.33

2. ✖ 50

3. ✔ 66.66

4. ✖ 100

Question Number : 61 Question Id : 8318966781 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A band limited signal is sampled at the Nyquist rate. The signal can be recovered by passing the samples through_____.

Options :

1. ✖ RC filter

2. ✖ envelope detector

3. ✔ PLL

4. ✖ Ideal low pass filter with the appropriate band width

Question Number : 62 Question Id : 8318966782 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following schemes suffer(s) from the threshold effect?

Options :

1. ✖ AM detection using envelope detection

2. ✖ AM detection using synchronous detection

3. ✔ FM detection using discriminator

4. ✖ SSB detection using synchronous detection

Question Number : 63 Question Id : 8318966783 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The image channel selectivity of super heterodyne receiver depends upon _____.

Options :

1. IF amplifiers only ✖

2. RF and IF amplifiers only ✖

3. Pre selector, RF and IF amplifiers ✔

4. Pre selector and RF amplifiers ✖

Question Number : 64 Question Id : 8318966784 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In a PCM system, if the code word length is increased from 6 to 8 bits, the signal to quantization noise ratio improves by the factor_____.

Options :

1. ✖ 1/16

2. ✔ 16

3. ✖ 3/16

4. ✖ $\log_2 16$

Question Number : 65 Question Id : 8318966785 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In a 16-ary PSK, the symbol rate is 10 kbps. The bit rate is_____.

Options :

1. ✖ 160 kbps

2. ✔ 40 kbps

3. ✖ 2.5 kbps

4. ✖ 0.625 kbps

Question Number : 66 Question Id : 8318966786 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Companding is used in PCM in order to_____.

Options :

1. ✔ keep the quantization noise low for low-amplitude segments of a signal

2. ✖ avoid quantization noise

3. ✖ reduce the effect of impulse or channel noise

4. ✖ reduce the complexity of the PCM system

Question Number : 67 Question Id : 8318966787 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The value of electric field at a distance of 1 m from an infinite line charge density 1 c/m is_____.

Options :

1. $2\pi\varepsilon_0$ ✖

2. $1/2\pi\varepsilon_0$ ✔

3. $\varepsilon_0/2\pi$ ✖

4. $2\pi/\varepsilon_0$ ✖

Question Number : 68 Question Id : 8318966788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A half wave dipole at a frequency of 100 MHz has a length of_____.

Options :

1. 100 m ✖

2. ✖ 3 m

3. ✔ 1.5m

4. ✖ 0.75

Question Number : 69 Question Id : 8318966789 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is the unit for Permeability?

Options :

1. ✖ Henry x Meter^2

2. ✔ Henry / Meter

3. ✖ Henry / Meter^2

Henry x Meter

4. ✖

Question Number : 70 Question Id : 8318966790 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Which of the following is the Laplace equation?

Options :

1. ✖ $\nabla^2 V = -\rho/\in$

2. ✔ $\nabla^2 V = 0$

3. ✖ $\nabla^2 V = -4\pi\rho$

4. ✖ $\nabla^2 V = -4\pi\sigma$

Question Number : 71 Question Id : 8318966791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The movement of charge carriers due to charge carrier concentration gradient is called_____.

Options :

1. Drift current ✖

2. Displacement current ✖

3. Diffusion current ✔

4. Photo current ✖

Question Number : 72 Question Id : 8318966792 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For operating an n-channel JFET in pinch-off region, the condition needed to be satisfied is_____.

Options :

drain current becomes linearly proportional to V_{DS}

1. ✖

$V_P \leq V_{GS} \leq 0$ and $V_{DS} \geq (V_{GS} - V_P)$

2. ✔

$V_{GS} \geq V_P$ and $V_{GS} \geq V_{DS}$

3. ✖

JFET acts as a voltage variable resistor

4. ✖

Question Number : 73 Question Id : 8318966793 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The advantage of twin tub process in CMOS fabrication is_____.

Options :

ensuring standard latch-up condition

1. ✖

prevention of latch-up condition

2. ✔

avoidance of post lithography etching

3. ✖

overcoming short channel effects

4. ✖

Question Number : 74 Question Id : 8318966794 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Back to back connected Zener diodes are used across the output terminals of a circuit to_____.

Options :

prevent unwanted oscillations

1. ✖

provide a constant negative feedback

2. ✖

limit the output positive and negative excursions

3. ✔

avoid back EMF into the original circuit

4. ✖

Question Number : 75 Question Id : 8318966795 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A 128 kbyte memory is to be realized using memory chips each with 8 address lines and 4 data lines. Number of memory chips required is_____.

Options :

1. ✖ 256

2. ✔ 1024

3. ✖ 128

4. ✖ 512

Question Number : 76 Question Id : 8318966796 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A six Flip-Flop Serial-In-Serial-Out shift register connected in twisted ring configuration has_____.

Options :

1. ✖ 6 states

2. ✔ 12 states

3. ✖ 24 states

4. ✖ 64 states

Question Number : 77 Question Id : 8318966797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Two functions F_1' and F_2 to be implemented using a suitable size PLA are given as $F_1' = \sum m\ (0, 1, 2, 4)$ and $F_2 = \sum m\ (0, 5, 6, 7)$. Minimum number of product terms necessary is_____.

Options :

1. ✔ Four

2. ✖ Five

3. ✖ Two

4. ✖ Three

Question Number : 78 Question Id : 8318966798 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The difference between the minimum output voltage during logic high and the minimum input level during logic high of a logic family is referred to as_____.

Options :

1. ✖ acceptable logic high output voltage range

2. ✖ acceptable logic high input voltage range

3. ✔ noise margin at logic high

operating voltage range

4. ✖

Question Number : 79 Question Id : 8318966799 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Fastest Logic family is_____.

Options :

1. ✔ Emitter Coupled Logic family

2. ✖ CMOS logic family

3. ✖ Schottky TTL logic family

4. ✖ Fast TTL logic family

Question Number : 80 Question Id : 8318966800 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For a 4-point sequence {0, 1, 2, 3}, FFT is_____.

Options :

1. { 6, -2+j2, -2, -2+j2 } ✖

2. { 6, -2+j2, 2, -2-j2 } ✔

3. { 6, -2+j2, -2, -2-j2 } ✖

4. { 6, -2-j2, 2, -2-j2 } ✖

Question Number : 81 Question Id : 8318966801 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For an LTI system_____.

Options :

1. group delay is twice phase delay ✖

2. group delay is always greater than phase delay ✖

group delay is always less than phase delay

3. ✖

group delay is equal to phase delay

4. ✔

Question Number : 82 Question Id : 8318966802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

20dB/decade is equivalent to_____.

Options :

0dB/octave

1. ✖

2dB/octave

2. ✖

4dB/octave

3. ✖

6dB/octave

4. ✔

Question Number : 83 Question Id : 8318966803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

For the standard second order system, with two poles lying at 60^0, damping ratio is_____.

Options :

1. ✖ 0

2. ✖ 1

3. ✖ 0.707

4. ✔ 0.5

Question Number : 84 Question Id : 8318966804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Shannon's channel capacity theorem supports the concept and need of_____.

Options :

Equalization

1. ✖

Source Coding

2. ✖

Channel Coding

3. ✔

Line Coding

4. ✖

Question Number : 85 Question Id : 8318966805 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The purpose of a matched filter in a digital communication receiver is to_____.

Options :

minimise Inter Symbol Interference

1. ✔

match the load impedance with line impedance

2. ✖

avoid cross talk among transmitted signals

3. ✖

improve Signal to Noise Ratio

4. ✖

Question Number : 86 Question Id : 8318966806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The multiple access method used in Global Positioning Systems is_____.

Options :

1. ✖ FDMA

2. ✔ CDMA

3. ✖ WDMA

4. ✖ TDMA

Question Number : 87 Question Id : 8318966807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The ability of a receiver to reproduce the exact replica of the transmitted signal at its output is described through its_____.

Options :

1. ✖ Sensitivity

2. ✔ Fidelity

3. ✖ Selectivity

4. ✖ Resolution

Question Number : 88 Question Id : 8318966808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Pre emphasis and De-emphasis are used in_____.

Options :

1. ✔ Frequency Modulation

2. ✖ Amplitude Modulation

3. ✖ Pulse Amplitude Modulation

4. ✖ Phase Modulation

Question Number : 89 Question Id : 8318966809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

M-ary encoding in Digital communication is done to achieve_____.

Options :

1. ✖ Power Optimization

Error detection and correction

2. ✖

Data encryption

3. ✖

Bandwidth efficiency

4. ✔

Question Number : 90 Question Id : 8318966810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Slope overload distortion occurs in_____.

Options :

Pulse Amplitude Modulation

1. ✖

Delta Modulation

2. ✔

Phase Shift Keying

3. ✖

Differential Pulse Code Modulation

4. ✖

Question Number : 91 Question Id : 8318966811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Commercial band for FM broadcasting is_____.

Options :

64 MHz - 106 MHz

1. ✖

700 kHz to 1600 kHz

2. ✖

88 MHZ to 108 MHz

3. ✔

1GHz to 300 GHz

4. ✖

Question Number : 92 Question Id : 8318966812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Dominant mode of propagation in a rectangular wave guide is_____.

Options :

1. ✖ TE01

2. ✖ TM01

3. ✖ TM20

4. ✔ TE10

Question Number : 93 Question Id : 8318966813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A propagating wave in a lossless medium along z-direction has x and y electric field components both sinusoidal of same amplitude and in phase with each other. The wave is_____.

Options :

Linearly Polarised along X-axis

1. ✖

Right circularly polarised

2. ✖

Linearly polarised at 45^0 to X-axis

3. ✔

Elliptically polarised

4. ✖

Question Number : 94 Question Id : 8318966814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The skin depth of a wave propagating through aluminium medium of conductivity σ, 38.2 MS/m is computed at 1.6 MHz frequency as 64.4 µm. The skin depth into same medium at 6.4 MHz frequency is_____.

Options :

32.2 µm

1. ✔

2. ✖ 128.8 µm

3. ✖ 16.1 µm

4. ✖ 64.4 µm

Question Number : 95 Question Id : 8318966815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The units of magnetic permeability and magnetic flux density respectively are_____.

Options :

1. ✖ F/m , Wb/m^2

2. ✖ H/m , Wb/m

3. ✔ H/m , Tesla

4. ✖ Wb-m , Tesla

Question Number : 96 Question Id : 8318966816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A uniform plane wave travels through fresh water characterised by $\varepsilon_r = 78$. Fresh water is non-magnetic and non-conducting. The wavelength of propagation in fresh water at an operating frequency of 300 MHz is_____.

Options :

1. ✔ 11.32 cm

2. ✖ 22.68 cm

3. ✖ 6.86 cm

4. ✖ 32.86 cm

Question Number : 97 Question Id : 8318966817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

An antenna driven by 6 Ampere current radiates 5 kW power into freespace. The radiation resistance of the antenna at 1 GHz frequency is_____.

Options :

1. 138 Ohms ✔

2. 31.2 Ohms ✖

3. 377 Ohms ✖

4. 278 Ohms ✖

Question Number : 98 Question Id : 8318966818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The number of propagating modes through an air filled rectangular waveguide of dimensions, a = 5 cm and b = 2.5 cm at 8 GHz frequency is_____.

Options :

1. ✔ Five

2. ✖ Four

3. ✖ Three

4. ✖ Six

Question Number : 99 Question Id : 8318966819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The ratio of the power radiated by an antenna to the total input power to the antenna is termed_____.

Options :

Directivity

1. ✖

Antenna gain

2. ✖

Radiation resistance of the antenna

3. ✖

Antenna efficiency

4. ✔

Question Number : 100 Question Id : 8318966820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

On a transmission line with standing wave the distance between a voltage maximum and adjacent current maximum is_____.

Options :

1. ✖ $\lambda/2$

2. ✔ $\lambda/4$

λ/8

3. ✖

λ/16

4. ✖

Question Number : 101 Question Id : 8318966821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The standing wave ratio of an open wire transmission line having a characteristic impedance of 600Ω and terminated by resistive load of 900Ω will be_____.

Options :

1

1. ✖

2

2. ✖

1.5

3. ✔

4 ✖

Question Number : 102 Question Id : 8318966822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

In JFET, drain current is primarily controlled by_____.

Options :

1 ✖ size of depletion region

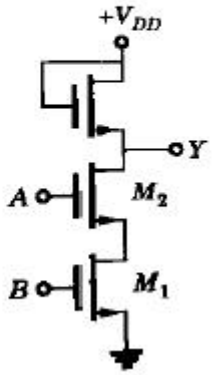
2 ✖ channel resistance

3 ✔ gate reverse bias

4 ✖ voltage drop across the channel

Question Number : 103 Question Id : 8318966823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The circuit shown in figure is



Options :

1. ✔ NAND

2. ✖ NOR

3. ✖ AND

4. ✖ OR

Question Number : 104 Question Id : 8318966824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

With some initial change at $t = 0^+$, a capacitor will act as_____.

Options :

1. ✖ open circuit

2. ✖ short circuit

3. ✖ a current source

4. ✔ a voltage source

Question Number : 105 Question Id : 8318966825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The Ebers-Moll model is applicable to_____.

Options :

1. ✖ Junction FET

2. ✖ UJT

3. ✖ nMOS

4. ✔ BJT

Question Number : 106 Question Id : 8318966826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The main advantage of super heterodyne receiver is_____.

Options :

1. ✔ simple circuit

2. ✖ better tracking

3. ✖ improvement in selectivity and sensitivity

4. ✖ better alignment

Question Number : 107 Question Id : 8318966827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The occurrence of double spotting indicates that_____.

Options :

1. ✖ the IF is too high

2. ✖ the selectivity is poor

3. ✔ image rejection capability of the receiver is inadequate

4. ✖ the local oscillator frequency is less than that of the incoming signal

Question Number : 108 Question Id : 8318966828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following type of noise becomes of great importance at high frequencies?

Options :

1. ✖ Short noise

2. ✖ Random noise

3. ✖ Impulse noise

4. ✔ Transit-time noise

Question Number : 109 Question Id : 8318966829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

As the aperture area of an antenna increases, its gain_____.

Options :

1. ✔ increases

2. ✖ decreases

3. ✖ remain steady

4. ✖ behaves unpredictably

Question Number : 110 Question Id : 8318966830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The intrinsic impedance of free space is_____.

Options :

1. ✖ 76π Ohms

2. ✖ 73 Ohms

3. ✔ 120π Ohms

4. ✖ 300 Ohms

Question Number : 111 Question Id : 8318966831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let $A = \begin{bmatrix} a+1 & b & c \\ a & b+1 & c \\ a & b & c+1 \end{bmatrix}$. If determinant of the matrix A is zero, then $(a+b+c)^3 =$ _____

Options :

1. ✖ 0

2. ✔ -1

3. ✖ abc

4. ✖ $3abc$

Question Number : 112 Question Id : 8318966832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let A be a 3×3 matrix and $B = 2A^2 + A^{-1} - I$, where I is a 3×3 identity matrix. If the eigenvalues of A are $1, -1$ and 2, then the trace of B is _____

Options :

1. ✖ 2

2. ✖ 0

3. ✖ $\frac{15}{2}$

4. ✔ $\frac{19}{2}$

Question Number : 113 Question Id : 8318966833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The value of the real variable $x > 0$ that minimizes the function $f(x) = x^{-e}e^{x}$ is_____

Options :

1. ✔ e

2. ✖ $1/e$

3. ✖ $\sqrt{e}$

4. ✖ 1

Question Number : 114 Question Id : 8318966834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

Let $f(x,y) = e^{-x}\sin(-y)$, $g(x,y) = e^{-x}\cos(-y)$ and C be the square with vertices at $(0,0), \left(\frac{\pi}{2},0\right), \left(\frac{\pi}{2},\frac{\pi}{2}\right), \left(0,\frac{\pi}{2}\right)$. Then, the value of the line integral $\oint_C [f(x,y)dx + g(x,y)dy]$ is _____

Options :

1. ✔ 0

2. ✖ $2\left(e^{\frac{-\pi}{2}} - 1\right)$

3. ✖ $e^{\frac{-\pi}{2}} - 1$

$2\left(1-e^{\frac{-\pi}{2}}\right)$

4. ✖

Question Number : 115 Question Id : 8318966835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation

$x^2y'' - xy' + 5y = 0$ is_____.

Options :

$Ax\cos 2(\log x) + Bx\sin 2(\log x)$

1. ✔

$Ae^x\cos(2x) + Be^x\sin(2x)$

2. ✖

$Ax\cos(\ln x) + Bx\sin(\ln x)$

3. ✖

$Ax\cos(\log 2x) + Bx\sin(\log 2x)$

4. ✖

Question Number : 116 Question Id : 8318966836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The particular integral of the differential equation

$\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 9y = e^{3x}$ is _____

Options :

1. ✖ e^{3x}

2. ✖ $\frac{xe^{3x}}{2}$

3. ✖ xe^{3x}

4. ✔ $\frac{x^2e^{3x}}{2}$

Question Number : 117 Question Id : 8318966837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The value of the integral $\int_C \frac{6z-5}{z^2+4z+5} dz$, where C is the circle $|z| = 1$, is _____

Options :

1. ✔ 0

2. ✖ $2\pi i$

3. ✖ π

4. ✖ $\frac{i\pi}{2}$

Question Number : 118 Question Id : 8318966838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

If the function $f(z) = -x^2 + xy + y^2 + i(ax^2 + bxy + cy^2)$ of complex variable $z = x + iy$ is analytic in the complex plane, then the values of a, b and c are _____

Options :

1. ✖ $a = \frac{1}{2},\ b = -2,\ c = \frac{1}{2}$

2. ✖ $a = -1,\ b = 1,\ c = 1$

3. ✔ $a = \frac{-1}{2},\ b = -2,\ c = \frac{1}{2}$

4. ✖ $a = 1,\ b = -1,\ c = 1$

Question Number : 119 Question Id : 8318966839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

A number is selected randomly from each of the following two sets

$\{1,2,3,4,5,6,7,8\}, \quad \{2,3,4,5,6,7,8,9\},$

What is the probability that the sum of the numbers is 9?

Options :

1. ✖ $\frac{1}{8}$

2. ✖ $\frac{1}{16}$

3. ✖ $\frac{3}{32}$

4. ✔ $\frac{7}{64}$

Question Number : 120 Question Id : 8318966840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Correct Marks : 1 Wrong Marks : 0

The probability of a component being defective is 0.01. There are 100 such components in a machine. Then the probability of two or more defective components in the machine is _____

Options :

1. ✖ $1 - e^{-1}$

2. ✖ $2e^{-1}$

3. ✔ $1 - 2e^{-1}$

e^{-1}

4. ✖